Missouri Department of Health & Senior Services

Health Alert

HA# 36

September 5, 2002

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SUBJECT: **Possible West Nile Virus Infection in Organ Transplant Recipients – Information for Clinicians**

The Department of Health and Senior Services is forwarding the following information from CDC. We encourage you to distribute this information widely. Please contact the department if you have any questions at 1-800-392-0272.

The Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Health Resources and Services Administration (HRSA), the Georgia State Division of Public Health, and the Florida Department of Health are investigating illnesses among four recipients of organ transplants from a single donor. West Nile virus infection was confirmed in the organ donor by detection of viral genomic material by PCR in a serum sample obtained on the day of death. Because of injuries sustained during a motor vehicle accident, the donor had received numerous transfusions of blood products before death. West Nile virus infection has been confirmed in three of the organ recipients; the fourth recipient has not yet been tested. Additional clinical information about the recipients is indicated below.

Case 1 - A female patient received a kidney transplant on August 3, 2002. Approximately two weeks after transplant, while at home, the patient developed fever, backache, non-bloody diarrhea, 4-5 days of rash, and 6 days of non-specific upper respiratory symptoms. She was admitted to the hospital and over the next five days had progressive decline in mental status requiring mechanical ventilation. Serology for West Nile virus IgG performed at a commercial reference laboratory was reported as 1:16 by indirect fluorescent antibody (IFA); <1:16 was considered negative. A CSF sample obtained approximately two weeks after illness onset was positive for IgM antibody by MAC-ELISA at CDC. The patient's mental status is improving and she no longer requires ventilatory support.

Case 2 - A male patient received a kidney transplant on August 2, 2002. Approximately two and a half weeks after transplant, while at home, the patient developed fever, headache, backache, and fatigue. After readmission to the hospital, the patient's mental status worsened from mild confusion with tremulousness to unresponsiveness; the patient subsequently died. Laboratory testing of his serum at a commercial facility was negative for West Nile virus infection. Testing of brain tissues obtained at autopsy showed extensive West Nile virus infection by immunohistochemical staining and quantitative PCR (TaqMan).

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Case 3 - A female patient received a liver transplant on August 2, 2002. While hospitalized, the patient developed a low-grade fever, cough, and malaise one week following transplant. Her symptoms resolved and the patient was discharged home. Laboratory evaluation of her serum for West Nile virus is underway.

Case 4 - A male patient received a heart transplant on August 2, 2002. The patient had been hospitalized for one month before transplant surgery. One week postoperatively, he developed ataxia followed by confusion, tremulousness, dysarthria, and obtundation. The patient required mechanical ventilation. West Nile virus IgM antibody testing of CSF and serum by MAC-ELISA at a Florida public health laboratory were strongly positive. The patient's mental status is improving and he no longer requires mechanical ventilation.

Although the cause of these illnesses remains under investigation, this cluster of illnesses should alert clinicians to the possibility of West Nile virus infection in organ transplant recipients and in patients receiving blood transfusions. Very little is known about West Nile virus infection in organ transplant recipients. Three of the four organ recipients in this investigation developed encephalitis approximately 8-17 days following transplant surgery. Illness in the kidney transplant patients first presented as fever unresponsive to antimicrobial therapy followed by progressive deterioration in mental status, including ataxia, dysarthria, and tremulousness. All three required mechanical ventilation; one died from brainstem herniation. Despite extensive West Nile virus infection observed in brain tissue, initial West Nile virus serology on the deceased patient was reported as negative at a commercial reference laboratory.

The evidence to date indicates that virus was transmitted from donor to recipients through the transplanted organs. The organ donor may have acquired infection through a mosquito bite or from blood transfusions received before organ recovery. West Nile virus infection in organ transplant or blood transfusion recipients has not been previously reported and the risk for acquiring West Nile virus infection from donated organs or blood is not known. At present, data are insufficient to indicate any changes to existing organ or blood donor screening and testing practices. Public health officials have initiated precautionary measures including a recall of any remaining blood products from blood donors whose blood was given to the organ donor. An FDA alert regarding West Nile virus and blood safety can be found at http://www.fda.gov/cber/safety/westnile.htm <http://www.fda.gov/cber/safety/westnile.htm> . Questions for FDA may be directed to: 1-800-835-4709. This number has been set up to respond to both clinicians and the public.

The investigation into possible West Nile virus infection in organ transplant recipients is ongoing. Clinicians caring for patients with febrile illnesses, particularly those associated with unexplained meningitis or encephalitis, occurring in the weeks following organ transplant should consider West Nile virus infection as a possible cause of illness. To help assess the possible risk of transmission of West Nile virus by blood transfusion, persons with probable or proven West Nile virus infection who donated blood one to two weeks before their illness began and could have been viremic at the time of donation as well as persons with unexplained meningitis or encephalitis which developed 3 to 21 days after receipt of a blood transfusion should be reported to local or state health departments. In addition, transfusion services and blood banks should follow usual FDA-required procedures for reporting any fatalities thought to be associated with a blood transfusion and investigating any non-fatal adverse events.

Organs and blood are lifesaving and in short supply. Donating blood is safe. For patients who need an organ transplant or blood transfusion, the benefits far outweigh any risks.

A full description of the clinical features and diagnostic test options for West Nile virus infection can be found at http://www.cdc.gov/ncidod/dvbid/westnile/resources/fact_sheet_clinician.htm <http://www.cdc.gov> . West Nile virus infection can be diagnosed by detection of IgM antibody in cerebrospinal fluid or serum samples by MAC-ELISA. Clinicians who suspect West Nile virus infection can obtain rapid testing at state laboratories through state or local health departments.

DHSS DISTRIBUTION LIST: Local Public Health Agency Administrators, State Emergency Management Agency, Office of Homeland Security, Missouri Hospital Association, Missouri State Medical Association, Missouri Association of Osteopathic Physicians and Surgeons, Missouri Primary Care Association

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